

Benefits and Costs of EPA's Activities

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A safer, healthier environment goes hand-in-hand with a robust economy. For environmental protection and sustained economic growth to occur together requires the use of common sense approaches that favor the most cost-effective ways to achieve our goals. EPA is committed to seeking the most cost-effective approaches by incorporating estimates of costs and benefits in strategic planning, where valid estimates of costs and benefits of economically significant regulations exist. This section: (1) describes how EPA generally considers benefit and cost information in its work; (2) provides some examples of retrospective and prospective analyses that EPA has done or is planning to do; and (3) discusses the significant costs and benefits associated with the Agency's goals that are presented in this Plan.

Consideration of Benefits and Costs

In setting its goals and developing specific policy instruments to achieve the goals, the Agency uses the best available science and economic analysis. All public policy decisions require consideration of several types of information and are made on the basis of multiple criteria. Economic efficiency, equity, institutional and legal feasibility, and risk tradeoffs represent some of the criteria that may be incorporated into policy discussions. Benefit-cost analysis is used to inform decision makers about the efficiency effects of alternative options. Benefit-cost analysis is an important tool used to organize information and clarify the potential effects of alternative decisions.

When designing and evaluating specific regulatory options for significant actions, the Agency generally devotes considerable attention to the study of economic costs and benefits of proposed actions. EPA primarily uses benefits and costs measures for two purposes: First, the Agency is involved in integrated, comprehensive assessments of entire environmental programs, such as the retrospective benefit-cost analysis required by Section 812 of the Clean Air Act Amendments of 1990. The report *The Benefits and Costs of the Clean Air Act, 1970-1990* is expected to be issued later this year. The Agency has also commenced the prospective benefit-cost analysis required under Section 812 of the Clean Air Act Amendments of 1990. Also, to assist in preparing for reauthorization of environmental legislation, EPA may prepare economic analyses to assess costs and benefits. A recent example can be found in the 1994 report *President Clinton's Clean Water Initiative: Analysis of Benefits and Costs*.



Second, the Agency continues to be committed to analyzing of costs and benefits of specific regulations as called for by Executive Order (E.O.) 12866. When EPA actions are expected to impose significant costs on the private sector (or on a particular industry), EPA conducts an analysis of the costs, benefits, and other anticipated economic impacts of the action. EPA is committed to assessing the costs and benefits of its significant programs and to adopting cost effective requirements to the extent permitted by law. EPA fully complies with the requirements of E.O. 12866 to develop economic information on the benefits and costs of each of its new economically significant regulations. EPA also prepares economic analyses for other reasons, such as those instances where authorizing statutes call for the preparation of economic information to support the regulatory development process. Within the past 18 months, EPA has prepared over 30 economic analyses to accompany its regulatory and policy development programs. This information will continue to be prepared in accordance with the procedural and timing requirements in the E.O. and under applicable statutes, and will be used to support the regulatory

development process. Economic information developed for this purpose will be available and used to support the GPRA process at EPA.

The Agency and public have frequently cited data on the aggregate costs of existing programs, represented in the 1990 EPA study entitled *Environmental Investments: The Cost of A Clean Environment*. Although that report did not directly estimate the costs to meet the specific goals established here, the overall cost estimates provided a general indication of the magnitude of pollution control expenditures in the United States in the late 1980s, and forecasted through the 1990s. At the time of its release in 1990, the report estimated that expenditure by industry, government and households in the late 1980s was on the order of \$100-120 billion (in 1990 dollars). Total U.S. costs were projected to increase to a new total of approximately \$170 billion to \$200 billion by the year 2000 (reported in 1990 dollars).

An important factor not reflected in forecasted costs contained in the 1990 report is that since its release, new environmental legislation and other modifications to the regulatory agenda have been introduced that seek to achieve environmental protection goals more cost-effectively. These programs and policies are not captured in the 1990 report's forecasts, thereby adding additional uncertainty to these figures. As a result of changes in policies, and with the advent of several new benefit-cost analyses of Agency programs and regulations, the Agency is taking steps to update its base of information on the national costs and benefits of environmental protection programs.

In addition to technological advances, another phenomenon affecting long-run compliance costs is the ability of the regulated community to develop more cost-effective methods of meeting regulatory requirements. While in practice this effect is difficult to quantify separately from the effects of technological change, the combined effects on pollution abatement and control costs can be incorporated into regulatory compliance cost forecasts by applying an assumed rate of productivity growth arising from both sources. Exaggerated compliance cost estimates also can arise from a failure to understand the nature of economic costs (at the margin), as distinct from engineering or accounting costs. Perhaps the most common error of this type occurs in the treatment of overhead, which is often calculated at average rather than marginal cost. Attributing the average rate to new

expenditures overstates the true incremental cost of regulatory compliance, since most support activities represent largely fixed costs. Other common errors of this type arise in the treatment of transfer payments like taxes, and in the case of factors purchased in markets that are less than competitive at prices higher than cost.

Despite committing substantial effort to this type of analysis, it is also fundamentally difficult to articulate the full array of economic benefits that result from preventing and controlling pollution. In concept, the benefits of less pollution can be defined as improvements in human health and the environment, including reductions in damages to plants, animals, materials, and other quality-of life attributes. For example, to evaluate the benefits of reaching an objective for decreased pollutant releases, one must document a complex sequence of analytic steps to arrive at an assessment of the impacts. Important prerequisites to estimating benefits include a clear scientific understanding of the linkage between an activity or condition and its effects on human health and the environment; scientifically based estimates of the incremental effects of these linkages, such as dose-response relationships, expressed in forms compatible with economic analysis; and assessments of the value of such effects. The assessments of risks from pollutants released to the environment, the measurement of the consequences to persons and natural life exposed to these pollutants, and the quantification of the values associated with these changes, are but some of the challenges facing EPA as we attempt to quantify the benefits of taking action. The analysis of benefits intends to cover the entire spectrum of benefits, from those that can be assigned a dollar value to those that can only be described qualitatively, and from those that are direct and immediate to those that are remote in distance or time. The bringing together of disparate types and forms of information is among the most useful features of performing cost-benefit analyses.

Consequently, the benefits and costs of the goals in this Plan cannot, in most cases, be measured with precision. Existing information on costs and benefits of individual EPA regulations does not provide complete coverage of all of the actions needed to achieve the goals and objectives described in the Plan. Many of the costs and benefits that may be associated with these goals either are very difficult to quantify or cannot be represented in monetary terms. It is difficult to quantify costs in any sort of reliable way when the specifics of implementation

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technologies and the nature of implementing regulations are unclear. Even when action options have been decided, very large uncertainties in the estimates of both costs and benefits remain.

Recognizing these limitations, the Agency examines to the best of its ability the benefit and cost information as individual regulatory options are developed, to inform decisions about the creation of new initiatives or changes in existing programs in the pursuit of its stated goals and objectives. If the regulatory actions necessary to achieve an objective cannot be justified, EPA will need to reconsider that objective prior to establishing programs and regulations. Over time, the particular objectives and numeric targets will evolve as better information is developed, allowing a more complete assessment of the benefits and costs. The continuing process of information collection and analysis will serve as the basis for refinement of the goals and objectives.

Analyses by Goal

For each of the strategic goals where the Agency anticipates significant impacts, we provide examples of the types of EPA actions for which we expect significant impacts. For each example, EPA has characterized the costs and benefits as we know them today. In some cases, we discuss significant rules that have already been promulgated because their implementation is an important component in achieving EPA's strategic goals and they demonstrate EPA's commitment to performing benefit-cost analysis.

Clean Air

The Office of Air and Radiation (OAR) estimates both costs and benefits of regulations that are determined to be economically significant under Executive Order 12866. These analyses are prepared for the proposed rule and then updated to reflect the requirements of the final rule. Generally speaking, OAR evaluates three classes of benefits: qualitative, quantitative and monetizable. In this framework, OAR monetizes those benefits for which sufficient information is available relating the pollutant reductions resulting from an action to monetizable changes in quality of life, presents information on quantifiable changes in health or environmental values, and discusses qualitatively those benefits OAR can neither quantify nor monetize.

Monetizable benefits that OAR considers include human health benefits, such as: reduced mortality and morbidity from the inhalation of pollutants; reduced cancer incidence rates; and reduced respiratory irritation and disease. The benefits from these reduced health effects arise from fewer deaths, lower hospital admissions, improved worker productivity and attendance, and fewer episodes of coughing and airway restrictions. OAR also monetizes welfare benefits from improved crop yields; reduced damage to grass, flowers, trees, shrubs, fruits, and vegetables; reduced deposition of acidic elements into water bodies, and improved visibility. When there is insufficient information to place a monetary value on a portion of the benefits, OAR provides a discussion of the expected (quantified) reductions for these pollutants. Qualitative discussions are presented for pollutants for which OAR does not have enough scientific or economic data to quantify, as well as some unquantified health effects categories, or esthetic changes (e.g., odor, building soiling and damage).

OAR's estimates of compliance costs include capital investment for the purchase of pollution control equipment or to alter production processes, annual operation and maintenance costs, monitoring and inspection costs, and administrative costs (e.g., reporting and record keeping). OAR also measures any savings in the cost of production that may result from a regulation. Examples of cost savings include reduced energy usage, the recovery of usable product, and the reduced cost of raw materials used in the production process. These cost estimates are used together with other economic information to evaluate the economic impacts that result from the imposition of pollution control requirements on an industry or other economic entities such as communities. Examples of economic impact measures include changes in social welfare, price or rate increases, decreases in production, job losses, facility closures, firm failures, and specific effects on small business.

The list below identifies the regulations that OAR is developing, or will soon start to develop, that are likely to be considered economically significant -- that is, they result in annual costs to affected parties of \$100 million or more or have other significant impacts. All of these regulations have the potential to be assessed in terms of the costs and benefits they create, with both aspects of the analyses available for public review at proposal and promulgation. The specific regulations that OAR has

projected for possible development during the period covered by this Strategic Plan include the following:

1. Review of National Ambient Air Quality Standards (NAAQS)

Under the requirements of the Clean Air Act to review each NAAQS every 5 years, the following NAAQS are targeted to be reviewed in the listed year to determine whether they adequately protect human health and the environment. This review involves collecting and analyzing the most current studies on the health and environmental effects of these pollutants. As a result of this review, a decision is made to revise or reaffirm the existing standard. If a revision to the NAAQS is proposed, it has the potential to be considered economically significant. However, until the review is conducted and a decision is made to revise or reaffirm, significance of the estimates of costs and benefits is not known. The standards that will be reviewed to determine if they should be revised are for the Carbon Monoxide (1999), SO₂ and NO₂ (2001), and Ozone and Particulate Matter (2002) Standards.

2. Iron and Steel Foundries Maximum Achievable Control Technologies Standard

Development of a technology-based standard to control air emissions from iron and steel foundries. These foundries make metal castings by pouring molten metal into a cavity. These castings are used in virtually every industry. Because of the number of facilities, this rule potentially could be economically significant. This rule is scheduled for promulgation by November 15, 2000. Since this rule is in the pre-regulation development phase (data gathering phase), costs and benefits cannot yet be calculated.

3. Miscellaneous Organic National Emission Standards for Hazardous Air Pollutants

Development of a technology based standard to control air emissions from Miscellaneous Organic Chemical Production Processes which consist of 21 source categories (e.g., Carbonyl Sulfide, Hydrazine, Photographic and Rubber Chemicals, Paints and

Adhesives). Because of the number of source categories and facilities, this rule could potentially be economically significant. This rule is scheduled for promulgation by November 15, 2000. Since this rule is in the pre-regulation development phase (data gathering phase), costs and benefits cannot yet be calculated.

4. Large Spark-Ignition Non-Road Engines

OAR currently has no regulations affecting spark-ignition (SI) nonroad engines above 25 hp. OAR plans to assess the need for emission standards and the appropriate levels and implementation dates of these standards. This evaluation will begin in FY1998. Costs and benefits will be determined as part of any rulemaking undertaken to promulgate standards. At this time, OAR has no cost or benefit figures because no decision has been made regarding the need for or the stringency of standards for large nonroad SI engines.

5. Tier III Particulate Matter on Non-Road Diesel Engines

OAR plans to evaluate the need for, and, if warranted, promulgate more stringent particulate matter (PM) standards for nonroad diesel engines. Information gathering for the evaluation will take place beginning next year and a final rule is expected in 2001. New standards will likely be made effective concurrent with the planned Tier 3 emission standards for other pollutants in 2006-2008. Costs and benefits will be determined as part of the rulemaking process in 2001. At this time, OAR has no cost or benefit figures because no decision has been made regarding the need for or the stringency of Tier 3 PM standards.

In pursuing its environmental goals, OAR is committed to using flexible implementation approaches that will achieve needed pollution reductions at the lowest possible cost. Such approaches include use of emissions trading and other market-based methods, incentives for new pollution-control technology, and federal/state partnerships that both help the states find cost-effective solutions and give them the flexibility to

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design their own programs. These flexible approaches will build on recent OAR market-based successes such as the ground-breaking Acid Rain and Stratospheric Ozone programs, as well as fruitful partnerships such as the Ozone Transport Assessment Group (OTAG) and the Grand Canyon Visibility Transport Commission. Perhaps the most far-reaching use of such flexible approaches is planned for EPA's new air quality standards for ozone and particulate matter, which will be implemented with extensive use of both emissions trading and federal/state partnerships to address the long-standing problem of interstate pollution transport.

Clean Water

The Office of Water (OW) estimates both costs and benefits of regulations determined to be economically significant regulations under E.O. 12866. These analyses are prepared for the proposed rule and then updated to reflect the requirements of the final rule. Generally speaking, OW evaluates three classes of benefits - qualitative, quantitative and monetizable. In this framework, OW: monetizes those benefits for which sufficient information is available relating the pollutant reductions resulting from an action to monetizable changes in quality of life; presents information on quantifiable changes in health or ecological values; and discusses qualitatively those benefits OW can neither quantify nor monetize (e.g., the aesthetics of clean water).

Monetizable benefits that OW considers include human health benefits of fish and water consumption; recreational benefits associated with boating, fishing, and swimming; and values for people not directly using the water (non-use or existence values). Quantifiable benefits include measurable changes in plant and animal populations and species abundance. Qualitative benefits include discussions of expected reductions in some health effects, esthetic changes (odor, color) and changes in biotic communities.

OW's estimates of compliance costs include both capital investment and operation and maintenance costs. OW also typically estimates the economic impacts that result from the imposition of compliance costs on an

industry or set of entities, which may include facility closures, firm failures, job losses and price or rate increases. Specific examples of the benefit and cost analyses that will be developed during the next few years are presented below.

1. Disinfection By-Products, Stage I

This proposed rule addresses a subset of drinking water by-products that are believed to cause long term human health problems. When the rule was proposed on July 29, 1994, OW estimated the compliance costs to be \$1.04 billion. OW's estimate of the benefits extends from a low range of \$359,000-\$867,000 to a high range of \$3.59 billion-\$8.67 billion. OW expects to finalize this rule in November 1998.

2. Interim Enhanced Surface Water Treatment Rule

This proposed rule addresses microbial risks to drinking water system. This rule was proposed on July 29, 1994. At proposal, the rule's estimated costs were \$393 million. The estimated benefits range from \$1.2 billion to \$1.5 billion. OW expects to finalize this rule in November 1998.

3. Great Lakes Water Quality Guidance

This rule establishes numeric criteria for human health, aquatic life and wildlife in the Great Lakes basin. The final rule was issued on March 23, 1995. The guidance's estimated costs range between \$60 million and \$380 million. OW did not estimate total benefits for this rule. However, OW conducted three case studies to compare costs and benefits. For the Fox River and Saginaw River case studies, benefits exceeded costs. For the Black River case study, costs were greater than benefits.

4. Metal Products and Machinery (MP&M) Effluent Guidelines, Phase I

Proposed on March 29, 1995, this rule addresses the discharge of toxic pollutants to our Nation's surface waters and to publicly owned treatment works. The estimated costs are \$160 million. The estimated benefits for the MP&M rule range between \$69.6



million and \$206.5 million. OW is planning to combine Phase I and Phase II of this industry into one rule, propose requirements for the combined industry in October 2000 and issue the final rule in December 2002.

Safe Food

EPA's Office of Pesticide Programs (OPP) develops few regulations that create economically significant effects. The vast majority of OPP's regulatory actions deal with registration of new pesticides and reregistration and modified registrations of existing pesticides. Occasionally, OPP will pursue suspensions or cancellation of currently marketed pesticides.

The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) is a risk/benefit balancing statute so costs of compliance, risk reduction characterizations, and impacts to users are considered for significant registration decisions and rules. EPA evaluates the risks and benefits in a public interest finding for conditional registration of new active ingredients which would permit earlier use of the products. Grower benefits also are considered for emergency exemptions. OPP has recently pursued activities to reduce costs for registrants of pesticides. Registration process improvements have accelerated the consideration of current field data, such as percent of crop

treated, application rates and methods, and pesticide monitoring residue levels, before requesting expensive studies.

Preventing Pollution and Reducing Risk

The use of pollution prevention strategies to achieve the goal of preventing pollution in communities, homes, workplaces and ecosystems enables the efficient reduction of pollution by allowing flexibility in choice of approach. Moving away from command and control regulatory approaches, pollution prevention strategies afford companies the advantage of meeting pollution reduction goals in ways that are most cost-effective and appropriate to their individual situation, allowing them to remain competitive in their industry. Capital investment in pollution prevention technologies is potentially less costly than mandated control technologies because industry can choose the technology that best meets its needs both in terms of pollution reduction and cost; unnecessary regulations that are costly to industry and society are avoided. State of the art technologies, such as "greener" chemicals, expand choices available to users of these chemicals allowing them to free up resources to maintain a competitive edge both domestically and internationally. Companies achieving their goals are likely to receive positive public and industry recognition that can translate into increased business.

By meeting pollution goals via pollution prevention, risk management and remediation strategies, research and innovation in more efficient and cost-saving technologies and strategies are encouraged. New industry and economic growth may be stimulated. International competitiveness can be enhanced as companies redirect resources away from inefficient uses.

By decreasing pollution in communities, homes, workplaces, and ecosystems, society will benefit from reduced exposures to toxic chemicals and thus, enhanced human and environmental well-being. This translates into decreased health care costs, such as for treatment of childhood lead poisoning and asthma-related illnesses. Addressing these health concerns may also contribute to increases in worker productivity and reductions in worker absenteeism that result from individual and family illness.

Safe handling and use of pesticides as well as the use of genetically engineered organisms can protect the



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environment, for instance, avoiding contamination of water and soil and loss of wildlife and recreational value of the natural environment. Decreases in the amount and toxicity of waste can offer similar benefits, as well as free up resources spent in waste clean-up for use elsewhere. Addressing the most toxic and/or persistent and bioaccumulative chemicals of hazardous waste helps to target only pollutants with the greatest contribution toward risk, thus efficiently protecting human health and the environment while freeing up resources (public and private) to address other environmental problems.

The Groundwater State Management Plan (SMP) Rule is an example of innovative environmental regulation. This Rule is designed to protect groundwater from contamination of pesticides at levels that pose unreasonable risk to human health and the environment. This Rule will delegate primary decision-making authority for specific groundwater protection actions to the affected states and EPA Regions. As such, the Rule *per se* does not authorize any specific regulatory decisions and, therefore, will not directly impose these costs. While this Rule has considerable flexibility to allow states and Regions to address local problems, EPA will provide the basic cost/benefit parameters for states to apply to case specific regulatory strategies.

The Agency's Regulatory Impact Assessment for the proposed SMP rule estimated potential economic impacts to agricultural users and consumers at approximately \$250 million per year if states and Regions elect to impose widespread pesticide use restrictions. The states and Regions can determine an appropriate action based on the available information about the costs and benefits associated with alternative actions. We anticipate that the expected benefits associated with any action taken will outweigh the costs, and that this net benefit will also compare favorably to those corresponding to alternative actions. Because decisions are made on a case-by-case basis, the Agency is unable to estimate what the costs and benefits of these future decisions will be since it does not know the scope and magnitude of present and future groundwater contamination.

Better Waste Management, Restoration of Contaminated Waste Sites, and Emergency Response

The Office of Emergency and Remedial Response (OERR) is conducting analyses of environmental, health and economic benefits arising from remediation of hazardous waste sites under CERCLA (Superfund). Many of the studies will be based on extensive data being collected for the more than 430 National Priority List (NPL) sites where construction has been completed. Individual analyses will focus on the benefits of avoiding chronic and acute human health problems; increases in property values; redevelopment benefits (e.g., jobs, income, taxes); and benefits to industry, small businesses; and communities. Some of these analyses are already underway. For the remainder of FY 1997, EPA will continue to support interagency efforts to develop a new, standard cost-reporting format, called the Work Breakdown Structure (WBS). Cost data recording using the WBS format will be entered into the Historical Cost Analysis System (HCAS) database. Both the WBS and HCAS will help EPA assess Superfund cleanup costs and improve future Superfund cleanup cost estimates. EPA will set up a structure for this project and will evaluate current data sources. Data collection is scheduled to commence in FY 1998. Data analysis is scheduled to commence in the middle of FY 1998.

The Office of Solid Waste is conducting a comprehensive assessment of the environmental, health, and human welfare benefits deriving from implementation of regulatory and non-regulatory programs under Subtitles C and D of the Resource Conservation and Recovery Act (RCRA). The project will include review of benefits assessments previously conducted for RCRA and other environmental programs, identification and review of methodologies for assessing benefits, evaluation of advantages and disadvantages of these methodologies, and implementation of the selected benefits assessment methodology. The RCRA benefits project will be conducted in phases, including planning, data collection, data analysis, and publication of results. The planning phase will result in a bibliographic list of relevant studies and analyses, a literature review, alternative methodologies for conducting the project, and a data collection plan. The

planning phase will be completed by the end of September 1997. Specific outputs and schedules for the other phases have not been finalized.

An example of a specific rule that the Agency plans to promulgate to achieve its waste management goal is the Corrective Action Rule for Solid Waste Management Units. The rule would provide a broad procedural and protectiveness framework for remediation at RCRA treatment, storage, and disposal facilities. As the majority of States are authorized for corrective action, the program is predominantly implemented at the State level; this rule would provide a Federal baseline with which State programs must comply. The corrective action rule was proposed in 1990, and is scheduled for promulgation in late 1998.

The total costs for as many as 5,800 facilities requiring corrective action are estimated at \$16.7 billion or less than \$300,000 per facility. The Agency evaluated the costs for three additional regulatory options (two options which are less stringent than the proposed rule requirements, and one which is more stringent). These options were designed to cover a range of alternatives with estimated total costs ranging from \$9.1 billion to \$57.3 billion. The Agency also examined six types of benefits of the proposed corrective action rule, including human health risk reduction, averted water use costs, nonuse benefits, effects of facilities on residential property values, and increases in facility values. In addition, the Agency examined ecological threats existing under baseline conditions. While a host of issues surround these benefit measures and how they compare with the compliance costs, the Agency believes that benefits outweigh the costs, and thus intends to move forward with a final rule. Prior to issuing a final rule, the Agency plans to perform further analysis of the social impacts.

The Chemical Emergency Preparedness and Prevention Office (CEPPO) has prepared a comprehensive cost-benefit analysis of the Accidental Release Prevention Requirements rule for Risk Management Programs (RMPs) under Section 112(r) of the Clean Air Act Amendments of 1990. The analysis compares the costs of alternative regulatory approaches with the benefits of preventing accidental releases of hazardous substances. CEPPO was able to reduce the initial cost burden imposed by the proposed rule by 67 percent through streamlining, building on existing regulatory requirements, and scaling

new requirements to the level of complexity and hazards. The benefits include a reduction in damages or costs associated with accidental releases of hazardous substances, including threats to human health (death or injury), responses to these threats (evacuations, sheltering in place), threats to the environment, and economic damages (lost production, property damages, and litigation). The analysis revealed that the benefits of RMPs administered by CEPPO outweigh the costs imposed by the rule.

Reduction of Global and Cross-Border Environmental Risk

Many of the objectives spelled out under Goal #6 (specifically, preservation of health and the environment in the Arctic, toxic risk reduction, marine pollution, cleaner and more cost-effective environmental practices and technologies, and some components of the U.S./Canada program) fall below the \$100 million economically significant cost threshold. Listed below are several international programs with significant effects that will be pursued by EPA during the next several years.

1. U.S./Mexico Border

Given the non-regulatory nature of EPA's work along the U.S./Mexico border, the Agency has not conducted any supporting benefit-cost analysis. However, during the NAFTA negotiations in 1993, various governmental and non-governmental organizations estimated the total costs for environmental infrastructure needs (including drinking water systems, wastewater collection and treatment, and solid waste disposal) at \$6 to \$8 billion over the ten-year period (1993-2003). These investments will help address the critical need to provide safe drinking water, acceptable treatment and disposal of sewage, and adequate solid waste practices in the Border region.

2. U.S./Canada

The total cost of EPA's Acid Deposition Control Program under Title IV of the Clean Air Act is estimated at \$2.4 billion per year beginning with full

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implementation in the year 2010. An EPA study issued in November 1995, *Human Health Benefits From Sulfate Reductions Under Title IV of the 1990 Clean Air Act Amendments*, estimates the total annual value of the health benefits in the United States (in 1994 dollars) resulting from Title IV's sulfate reductions. The study estimates the value to be between \$3 billion and \$11 billion in 1997, and between \$12 billion and \$40 billion by 2010.

3. Stratospheric Ozone Depletion

The phaseout of ozone-depleting substances under the Montreal Protocol (and associated regulations implemented by EPA under the Clean Air Act Amendments of 1990) was designed to occur over many years, beginning in 1989 and resulting in the elimination of production and import of many ozone-depleting substances by January 1, 1996. The long-term economic benefits to the United States of preventing deaths from skin cancer and avoiding other health and environmental damage by phasing out the production and import of ozone-depleting substances are estimated to be dramatically significant over the time period 1989 to 2075 compared with costs of the program.

Expansion of Americans' Right to Know About Their Environment

EPA has placed increased emphasis on enhancing Americans' right to know about information concerning our food, drinking water, air, homes and communities. Improving the access to and quality of environmental information allows the public, government agencies, and industry, to make more efficient decisions. EPA is committed to developing and making easily available environmental and public health information throughout its programs. With exception of the Toxic Release Inventory (TRI), the Agency expects few right-to-know initiatives to impose significant costs on the public.

The Toxic Release Inventory (TRI), created by Congress under the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986, is the cornerstone of EPA's right-to-know efforts. TRI requires manufacturers

to report air, water, and land releases of more than 600 designated toxic chemicals to EPA each year. Manufacturing facilities are also required to report on shipments of waste off-site for treatment or disposal, as well as on their pollution prevention activities, on-site waste treatment, and chemical recycling. With TRI data, concerned citizens, local communities, and government can work with local industrial facilities to better understand toxic chemical release, to reduce those releases, and to improve chemical storage and handling practices.

TRI data has helped companies interested in reducing their releases to adopt pollution prevention strategies, including redesigning production processes to improve efficiencies and create less waste. Among the industrial sectors that have achieved the greatest reductions in TRI chemical releases between 1988 and 1993 are the chemical industry, with reductions of more than one billion pounds, or 44 percent; the electrical utility industry which reported reductions of 86 million pounds, or 69 percent; and the primary metals manufacturing industry, whose total releases fell by 237 million pounds, or 42 percent between 1988 and 1993. In 1997, the Agency greatly enhances the level of TRI information available to society by expanded TRI reporting to additional industries. The result will be an additional 42,500 reports from 6,600 facilities every year.

More than 90,000 TRI reports are submitted each year by more than 25,000 facilities. TRI compliance costs industry \$352 million each year for completing and submitting reports for the more than 600 chemicals on the TRI. EPA recently implemented changes to the program which resulted in annual savings of approximately \$38 million (including savings to EPA of \$2.2 million in administration costs). EPA spends \$13.6 million each year to administer the TRI. The recent expansion to additional industrial sectors is estimated to cost \$226 million in the first year, dropping to \$143 million per year thereafter.

Because TRI -- with its emphasis on the power of information instead of command and control regulation -- has proven to be a successful tool, EPA is applying the right-to-know concept in other areas. In 1997 EPA launched the Center for Environmental Information and Statistics (CEIS) to provide the public with easy access to understandable information on drinking water quality, air quality, beach contamination and other environmental

conditions. A key component of CEIS is to integrate the Agency's existing environmental data, increasing their efficiency and utility to the public, as well as to the Agency and other governmental entities.

Another component of EPA's right-to-know strategy is the Environmental Monitoring for Public Access and Community Tracking (EMPACT) initiative. Collaborating with other federal agencies, EMPACT will improve data collection and integration and foster the development of more effective environmental monitoring technologies. EMPACT is a community-based right-to-know effort that will target real-time, automated environmental information delivery to at least the 75 largest metropolitan areas in the country.



